is once in motion, or even when the ship is poised in the air and the wind is blowing past the same, the air enters the small end of the trough and, passing rearwardly in the same, expands more and more to fill the wider portions of the trough, thus becoming rarefied, whereupon the pressure of the air below the bottom portion of the plane lifts the latter and ship. Of course, the air rushes into the trough from the sides and tends to establish equilibrium of pressure with the outside air. To prevent this in-rush of air as much as practicable, the sides 4 are made of considerable depth, and may be gradually increased in depth from the front to the rear. If the relative movement between the ship and the air is very high, any plane of air which is cut by the front end of the aeroplane will have passed beyond the rear end of the plane before the in-rushing air can have established equilibrium. In such a case, the lifting action due to the rarefaction of the air is much greater than when a slow relative movement between the air and the plane is maintained. To assist in rarefying the air within the trough, the propeller is placed at the rear end of the latter so as to draw the air from the trough.

While the drawings show the side portions 4 of the trough as slightly inclined from the perpendicular to the bottom portion 3, this angle may be varied. The drawings also show the angle of these side portions as constant from the front to the rear. This is not a necessary feature of construction, as the angle of inclination from the perpendicular may increase from the front to the rear so that the sides become twisted planes.

In this application I have intended merely to set forth the principle upon which my plane operates and to show a form of plane which is capable of realizing that principle. I wish it to be understood, therefore, that the device shown and described is not intended to show the only form, or perhaps even the best form in which experience may show that the plane should be shaped, and the accompanying claims are not intended to be limited to such form any further than is rendered necessary by the specific terms therein employed.

Having thus described my invention, what I claim is:

1. A plane for an air ship formed in the shape of an open-topped, open-ended trough that is narrowed at its front end.

2. A plane for an air ship formed in the shape of an open-topped, open-ended wedge-shaped trough.

3. A plane for an air ship formed in the shape of an open-topped wedge-shaped trough, the depth and width of said trough increasing from the front toward the rear, said trough being open-ended.

4. In an air ship, the combination with a plane that is formed in the shape of an open-topped, open-ended trough that is narrowed at its front end, of a propeller at the rear end of said trough, and means for driving said propeller.

5. In an air ship, the combination with a plane that is formed in the shape of an open-topped wedge-shaped trough, of braces for holding the sides of said trough rigidly, a propeller at the rear of the trough, and means for driving said propeller.

6. In an air ship, the combination with a plane formed in the shape of an open-topped, open-ended wedge-shaped trough, a propeller at the rear of the trough, a car suspended from the plane, and a motor for driving said propeller.

7. A plane for an air ship formed in the shape of an open-topped, open-ended wedge-shaped trough, the sides of which diverge outwardly from the bottom.

8. A plane for an air ship formed in the shape of an open-topped, open-ended wedge-shaped trough, the sides of which diverge outwardly from the bottom and increase in depth from the front to the rear.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

JOSEPH A. WILLIAMS.

Witnesses:
A. J. HUDSON,
BRENNAN B. WEST.